**IT Applications, Unit 4**

**Ch Developing a solution using spreadsheet software, p 192-213**

Case Study: Point Pleasant Social Service Program – organisational outline and current practice

**Designing spreadsheet solutions and output**

1. Describe what is involved in the solution design stage.

**Spreadsheet Design Tools**

Elaborate under each of the following design tools:

1. **IPO chart**

Used during the design process to clearly identify the solutions input, output and the processing. Completing an IPO chart gives the developer a sense of how much formula development work might occur during the manipulation stage.

1. **Flow chart, (list what each of the symbols mean from fig. 5-10.)**

Used to graphically represent the steps required to create a solution or a procedure to use the solution. Each step is written inside a shape and these shapes are joined to other relevant shapes.

1. **Formula list**

Similar to a data dictionary, shows a detailed list of the formulas to be used to achieve each bit of the output.

1. **Structure chart**

A graphical representation of how the spreadsheet solution might work. They cna be made using a mind-mapping application such as Inspiration or Viso.

1. **Layout diagrams**

Basic layout of each type of worksheet in the spreadsheet solution.

- The type of data to be entered in the cells

- Indication of the contents of the cell

- Labels

- Any validation rules

-**Formats and conventions**

- Headings, subheadings and instructions

**Formats and conventions, p 202-**

1. **list under each of the following subheadings the major formats and conventions that apply to spreadsheets:**
   1. **numerical information**
      * Numbers are right-aligned
      * Money values have two-decimal places or none
      * Decimal points are aligned by using consistent no of decimal places
      * Percentages in the data appear with a % at the top of the column rather than at each data point
      * Subtotals have a single line above the total
      * Grand totals have a single or double line above the total
      * Grand totals are in bold
      * Symbols indicating the unit of measurement, e.g. $, % kg, cm, etc – appear at the top of the column
      * Naming columns
   2. **financial reports**
      * Use a space or a comma to separate numbers greater than 999, e.g. 1,999 or 1 999
      * Use italics t indicate addition or subtraction
      * Subtotals have a single line above the totals
      * Include $ sign to column headings rather than next to each money value
      * Right-align dates t allow for double figures
   3. **charts and graphs**

- Graphs and charts must have titles identifying the name of the organisation and the purpose of the graph or chart

- x and y axis must be labelled

- Use a key if one set of data is provided n the same graph or chart

- Author identification and/or source of data, date and a filename

- Label each segment of a pie graph

- Arrange segments if the pie chart from largest to smallest.

- Colours match the info being discussed.

1. **Describe the file naming conventions for spreadsheets.**

**Designing a macro**

1. **What is a macro?**

A automated series of tasks. Create by using the macro recorder. Planned using **pseudocode.**

**Validation**

1. **Describe each of the following types of validation used in a spreadsheet:**
   1. **Range checking**

Checking to ensure that data falls within a certain range.

* 1. **Existence checking**

Checking to make sure a code or formula exists.

* 1. **Conditional formatting**

Making sure that certain conditions have a format applied to it.

* 1. **Data type checking**

Checking to make sure that the data is a particular type. E.g. number of objects sold are integers and not decimal places.

* 1. **Restricted data entry**

Best way to ensure that data is entered correctly. E.g. a drop down box will give the user a select number of possible choices, minimising the users chance of entering incorrect data.

* 1. **Validation alerts**

Alerts the user when data that does not follow the validation rules is being entered.

**Planning to test a spreadsheet solution**

1. **What is the difference between validation and testing?**

Validation is the checking the data for illegal data types, reasonableness, correct spelling, data falls within a correct range or that codes that are used are consistent.

**i.e. Validation is involved in the input, testing is involved with the solution itself and the output.**

1. **When is the test plan or test table created?**

While devolving the solution, using any mistakes as the basis for some good tests.

1. **Attributes or properties to a spreadsheet solution that need to be tested; elaborate under each of the following testing types:**
   1. **Functionality testing**

Relates to the actions that the solution was designed to carry out. Involves the systematic testing of all formulas for every example, test data might test both the upper and lower boundaries of a range or codes.

* 1. **Presentation testing**

During the design phase a decision must be made to determine the appropriate format of the solution and how the solution should be communicated.

* 1. **Usability testing**

Usability testing tests whether the solution is user-friendly and makes sure that the information is easily accessible to all users.

* + - Are worksheets labelled correctly?
    - Is it easy to navigate
    - Do all hyperlinks work
    - Are input cells unprotected
  1. **Accessibility testing**

A spreadsheet needs to be easily accessible.

* + - Does the solution open at the correct worksheet
    - Are font sizes easy to read
  1. **Communication of message**

The important information in a spread sheet needs to be clear and obvious. All spreadsheets should be kept as simple as possible.

**Evaluating the solution and output**

1. **What does evaluation consider?**

The efficiency and effectiveness of the solution. Occurs after the solution has been implemented, usually 3 to 6 months afterwards.

1. **What information needs to be gathered?**

Information from users to determine if the solution is meeting the systems goals.

1. **Who is best to undertake the evaluation?**

Someone other than the developer, so the solution is more likely to be viewed impartially.

1. **When are the evaluation criteria developed?**

In the design stage – so the designers know what features to include.